

Patent Claims

1. A protective switching device, in particular a differential-current circuit breaker, having a core-
5 balance transformer (6) which monitors a line network (Ln) and actuates a release (4) which is coupled to a switching mechanism (16) in order to operate a power
breaker (18), characterized by a tripping circuit (5)
10 having a transformer (20) which can be actuated on the secondary side and is connected on the primary side to an actuation circuit (13) of the release (4).

2. The protective switching device as claimed in claim 1, characterized in that, if the secondary of the
transformer (20) is short-circuited, the tripping
15 circuit (5) produces a control signal (S_s) for the actuation circuit (13) of the release (4).

3. The protective switching device as claimed in claim 1 or 2, characterized in that the tripping
circuit (5) comprises an oscillator (22) which is
20 connected to the primary side of the transformer (20).

4. The protective switching device as claimed in claim 3, characterized in that the oscillator (22) is a square-wave generator whose frequency (f) is set to
between 500 Hz and 5 kHz.

25 5. The protective switching device as claimed in one of claims 1 to 4, characterized in that the tripping circuit (5) has a comparator (24; V2) which is connected on the primary side to the transformer (20) and is connected on the output side to the actuation
30 circuit (13) of the release (4).

6. The protective switching device as claimed in one of claims 1 to 5, characterized in that the tripping

circuit (5) has a non-reactive resistor $R5 \geq 10 \text{ k}\Omega$ which is connected to the primary winding (N1) of the transformer (20).

5 7. The protective switching device as claimed in one of claims 1 to 6, characterized in that the tripping circuit (5) has a reference signal source having a voltage divider (R7, R8) which is fed from a supply voltage (U_v), via a zener diode (D2).

10 8. The protective switching device as claimed in one of claims 1 to 7, characterized in that the secondary of the transformer (20) is connected to ground potential (PE) via a resistor series circuit (R11, R12).

15 9. The protective switching device as claimed in one of claims 1 to 8, characterized in that the actuation circuit comprises a comparator (13) with a downstream controllable electronic switch (14), which is connected to the release (4).

20 10. The protective switching device as claimed in claim 9, characterized in that the controllable switch is a transistor (14) whose base control input is connected to the comparator (13) and in whose collector-emitter circuit a tripping relay coil (15) of the release (4) is connected.